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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/535,366

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Takashi Abe

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10/17/2008

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EXAMINER

HSTU, AMY R

ART UNIT

PAPER NUMBER

2622

MAIL DATE

DELIVERY MODE

10/17/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/535,366

**Applicant(s)**

ABE ET AL.

**Examiner**

AMY HSU

**Art Unit**

2622

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 July 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3, 5 and 6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5 and 6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

***Response to Arguments***

1. Applicant's arguments with respect to claims 1-3, 5-6 have been considered but are moot in view of the new ground(s) of rejection. The amendments pertaining to the light shielding film are new to the claims and therefore necessitate the new grounds of rejection.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al. (US 6674470).

Regarding Claim 1, Tanaka teaches in the first embodiment, a solid-state imaging device comprising: an imaging area having a plurality of unit cells in a two-dimensional array (*Fig. 3*), each unit cell of the plurality of unit cells including a group of a predetermined number of pixels (*Fig. 7*); signal lines to select the pixels (*Fig. 7 reference numbers 38-1 and 40-1, "photodiode selection lines"*), wherein each unit cell includes a plurality of photoelectric converters corresponding to the pixels (*Fig. 7 reference numbers 92a and 92b*); an amplifying unit, shared by the pixels, to amplify a signal readout from each photoelectric converter and output the amplified readout signal

*(reference number 94, shared by the pixels corresponding to 92a and b photodiodes); and a supply element to supply the readout signal to the amplifying unit (reference numbers 93a and b are readout transistors to supply the signal from the photodiode to the gate of the amplifying unit, 94) and wherein, the signal line used to drive the amplifying unit is a full-face signal line shared by the pixels and driving the full-face signal line allows the signal to be read out from each pixel (Col 7 Lines 54-55 teaches that the reset transistor 96 charges, or drives, the amplifying transistor 94. Therefore the reset line, reference number 36-1, is the full-face signal line which charges the amplifier allowing the signal to be read out from the pixels. Also this full face signal line is shared by at least pixels corresponding to the photodiodes 92a and b), however, Tanaka does not teach in the first embodiment that the full-face signal line serves as a light shielding film and has an opening corresponding to a light receiving surface for every pixel.*

One of ordinary skill in the art recognizes that out of the pixel circuitry, only the photodiode is light sensitive and the other circuitry is commonly metal or at least another light shielding material. Referring to Fig. 28C and Col 24 Lines 15-20, Tanaka teaches in the sixth embodiment that the signal wiring, specifically the drain wiring which are signal lines connected to the amplifying means and the reset transistor, serve also as light shielding film by covering the portion except the portion above the photodiode.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teaching of Tanaka in the first embodiment by realizing from the

sixth embodiment that the wiring, specifically the full face signal lines extending from the amplifier and reset transistors, but also including any part of the pixel circuitry on different physical layout levels than the photodiode, can be used as light shielding material that is open at the location for the photodiode to receive light. This would have been obvious because the layers above the photodiode are necessarily present already and are coincidentally made of metal or other light shielding material and hence there is no need for any additional layers for the purpose of light shielding.

Regarding Claim 2, Tanaka teaches the solid-state imaging device according to claim 1, further comprising a reset unit to reset an input section of the amplifying unit (*reference number 96 and Col 7 Lines 54-55*)

Regarding Claim 3, Tanaka teaches the solid-state imaging device according to claim 2, wherein the signal line used to drive the reset unit is the full-face signal line (*reference number 36-1, "reset line"*) and driving the full-face signal line resets the input section of the amplifying unit (*driving the reset line causes the amplifying transistor to be reset by the reset transistor*).

Regarding Claim 5, Tanaka teaches the solid-state imaging device according to claim 2, further comprising: a full-face selection signal that passes through the full-face

signal line to drive the reset unit and the amplifying unit (*signal line 36-1 drives the reset means which, as it is directly connected to reference number 96, the reset transistor, which in turn resets the amplifying transistor 94*), wherein, the full-face selection signal is changed from an active state to a non-active state at a time outside a readout operation period of the pixel (*Fig. 8 shows the state of the full face signal line, 36-1, is changed from active to non-active state outside the readout period*).

Regarding Claim 6, Tanaka teaches the solid-state imaging device according to claim 2, wherein the reset unit is a transistor (*Fig. 7 reference number 96*), and wherein a full-face selection signal passing through the full-face signal line is changed to an active state during a readout period of the pixel, a reset signal supplied to the gate of the reset unit is changed to a non-active state, and a driving signal supplied to a transfer unit is changed to the active state to read out a charge signal stored in the photoelectric converter (*this well known process of reset and readout, transfer and output are illustrated in the timing diagram of Fig. 8*).

### **Conclusion**

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AMY HSU whose telephone number is (571)270-3012. The examiner can normally be reached on M-F 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lin Ye can be reached on 571-272-7372. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Amy Hsu  
Examiner  
Art Unit 2622

ARH 10/8/08

/Lin Ye/  
Supervisory Patent Examiner, Art Unit 2622